

Abstract of the Invention

An effective electropurge process and apparatus for wet processing of semiconductor wafers applies electrical charges to the wafer surface with an ample voltage sufficient to provide an effective field intensity which can substantially eliminate intolerable sub-0.05 micron "killer" defects when making highly advanced microchips with a feature size or line width less than 0.15 micron. The process can be used for automated wet-batch cleaning operations using cassettes that hold 10 to 50 wafers at a time and in various other operations involving megasonic transducers, mechanical brush scrubbers, laser cleaners and CMP equipment. The electropurge process is primarily intended for Fab plants where large wafers with a diameter up to 400 mm require 250 to 350 steps including many dry layering, patterning and doping operations and at least 30 wet processing steps.